

Applicant : Yanbin Shao  
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### REMARKS

Claims 1-3, 5-6, 8, 12-14, and 18-21 are currently pending of which claims 1, 8, and 18 are independent. Claims 1, 8, 14, and 18 have been amended. No new matter is added. Reconsideration of the action mailed October 18, 2004, is requested in light of the foregoing amendments and the following remarks.

The Examiner rejected claims 1, 3, 6, 8, 12-13, 18-19, and 21 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,760,158 to Cao ("Cao"). Applicant traverses the rejections.

The Examiner objected to claims 2, 5, 14, and 20 as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Applicant appreciates the Examiner's recognition of allowable subject matter in claims 2, 5, 14, and 20.

### **Section 102(e) Rejections**

Claim 1 stands rejected as anticipated by Cao. Claim 1, as amended, is directed to a circulator that includes a polarization beam splitter optically coupled to the first input port and operable to reflect the first component of light transmitted from the first input port having the first polarization and pass the second component of light transmitted from the first input port having the second polarization.

The Examiner states that Cao discloses Applicant's polarization beam splitter as element 102 of FIG. 6h. Applicant respectfully disagrees. FIGS. 6a to 6h disclose several variations of an optical separator. *See* FIGS. 6a-6h, col. 12, lines 10-30. For each optical separator disclosed by FIGS. 6a-6h, light is input at one of several polarizing ports (e.g., port 116a). Each input port is a polarizing port that receives light having multiple polarizations, but only transmits light having a single polarization. *See* FIG. 1d; col. 4, lines 13-23. For example, the input path for light entering the optical separator at port 116a is shown in FIG. 6a. Light emerging from port 116a having a single polarization is transmitted through a polarization beam splitter 102 to an interferometer 110. *See* FIG. 6a; col. 13, lines 4-11; col. 4, line 63 to col. 5, line 14. All of the light passing from the input port 116a has the same polarization and thus all of the light passes

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through the polarization beam splitter 102 to the interferometer 110. *See* FIG. 6a; col. 5, lines 5-7 and 11-14. FIG. 6h illustrates a path of light from the interferometer to one or more output ports. *See* FIG. 6h. the interferometer rotates the polarization of the incident light such that the reflected light from the interferometer can be reflected by the polarization beam splitter 102. *See* FIG. 6h.

Cao does not disclose or suggest a polarization beam splitter coupled to a first input port that receives a first component of light transmitted from the input port having a first polarization and second component of light transmitted from the input port having a second polarization. The input port disclosed by Cao only transmits light having a single polarization. Therefore, the polarization beam splitter 102 cannot receive light transmitted from the input port having a first and second component of light having different polarizations. Additionally, because all of the light from the input port has the same polarization, the polarization beam splitter must pass all incident light from the input port. Therefore, the polarization beam splitter cannot pass one component of light received from the input port and reflect a second component of light received from the input port. Applicant respectfully submits that claim 1, as well as claims 2-3 and 5-6, which depend from claim 1, are in condition for allowance.

Claim 8 stands rejected as anticipated by Cao. Claim 8, as amended, is directed to a method for transmitting light that includes transmitting a light signal including a first and a second component having a first and second polarization, respectively, from the first input port onto a polarization beam splitter.

The Examiner states that the optical separators of FIGS. 5a and 5b disclose transmitting a light signal including a first and second component having a first and second polarization. Applicant respectfully disagrees. FIG. 5a shows the path of a component of light from an input port 116d to a first output port 116c. *See* FIG. 5a; col. 11, lines 52-65. FIG. 5b shows the path of a component of light from the input port 116d to a second output port 116b. *See* FIG. 5b; col. 11, lines 52-65. As with the input ports of FIG. 6, described above, the input port 116d is a polarizing input port. Therefore, all light signals passing through the input port 116d are polarized such that the light leaving the port has a single polarization. *See* FIG. 1d; col. 4, lines

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13-23. Claim 8, however, requires that the light transmitted from the input port have both a first and a second polarization. Cao does not disclose or suggest light having both a first and a second polarization being transmitted from the input port onto a polarizing beam splitter. Applicant respectfully submits that claim 8, as well as claims 12-14, which depend from claim 8, are in condition for allowance.

Claim 18 stands rejected as anticipated by Cao. Claim 18 is directed to a circulator that includes a second reflector optically coupled to the polarization beam splitter, the second reflector being operable to maintain a polarization of the first and the second light signals.

The Examiner states that Cao discloses Applicant's second reflector in FIG. 8. Applicant respectfully disagrees. FIG. 8 of Cao discloses another implementation of an optical separator. The Examiner states that interferometer 110 is the second reflector of claim 18. Interferometer 110 is operable to reflect incident light signals. However, the interferometer changes the polarization of a first light signal while maintaining the polarization of a second light signal. *See* col. 11, lines 25-30. The interferometer rotates the polarization of the even wavelengths such that they can pass through a polarization beam splitter. *See* col. 11, lines 25-30. The rotation by the interferometer is necessary for the first light signal to reach the output port of the optical separator shown in FIG. 8. Therefore, Cao does not disclose or suggest a second reflector that maintains a polarization of the first and second light signals. Applicant respectfully submits that claim 18, as well as claims 19-21, which depend from claim 18, are in condition for allowance.

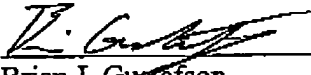
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Applicant respectfully requests that all pending claims be allowed. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 18 January, 2005

  
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